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ABSTRACT

Memory demands made by mothers of very young children are discussed in two studies of joint picture-book reading and one study of mother/infant pairs who looked at family photograph albums. While memory demands made by mothers differed as a function of child's age and linguistic development, at about 15 months of age children were expected to take an increasingly active role in the reading dialogue. Following their earliest demands for recall of the names of individual objects, mothers increased their demands by asking for recall of indirectly specified information. For recognition memory, the case was slightly more complex. Sometimes, instead of pointing to an object and telling the child its name, the mother would name an object and ask the child to point to it. Data indicated that mothers of older children increased the complexity of their demands for recognition memory. Mothers used one clearly mnemonic technique: they related pictured material to their child's personal experience. In all three studies, mothers of young children showed a strong bias to ask their children to report general knowledge rather than to recount specific events from personal past experience. (Concluding remarks focus on the developmental implications of the findings.) (RH)

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JOINT PICTURE BOOK READING AS MEMORY TRAINING FOR TODDLERS

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Recently, developmental researchers have emphasized the social origins of a variety of cognitive skills. Picture book reading, which is one of the most common forms of routine interaction between very young children and their parents, is to a great extent a joint cognitive endeavor. Memory activities are especially prominent, in that a large proportion of the reading session involves the parent prompting the child to demonstrate what he knows or remembers about the pictured material. Our research with a sample of middle-class mothers indicates that they carefully structure reading sessions to enable their children to participate as fully as possible and to produce correct memory-based responses. The mothers do this by matching what they demand from the child to their perception of his competence; generally, the older the child the more extensive and complex the mnemonic performance asked of him.

In this paper I will discuss memory demands made by mothers of very young children in two studies of joint picturebook reading. In one reading study, 24 mothers and their 12-, 15-, and 18-month-olds "read" a simple ABC book that pictured one object for each letter of the alphabet. In the second reading study, 15 pairs of 18- to 38-month-old children and their mothers talked about a complex farm scene from a popular children's book. In a third study now in progress we have been observing mother-toddler pairs looking at their family photograph albums together.

Memory demands made by the mothers differed as a function of the age of their children. With the youngest children (12-month-olds), almost no memory demands of any sort were made. The mother tended to be the only active participant in the interaction, and her role was primarily limited to simply

labelling the pictures as she pointed to them. The following segment from the protocol of a mother of a 12-month-old includes everything the mother said about three successive pictures.

M(12): Look at the apple. Apple.
" Teddy bear.
" And kitty.

For most of the 12-month-olds and their mothers, the entire session consisted of the mother telling the child the names of objects pictured in the book. Occasionally, the mother provided some additional information about the objects, although this was most often limited to imitating the sound made by an animal or object. ("Frog. He goes 'ribbit, ribbit.'")

The mothers of the younger children in our sample (12- and 15-month-olds) often used a question format ("What's this?"), without really seeming to expect a response from the child. In the clearest examples, the mother names the object and merely asks the child to confirm her label. ("That's a doggie, isn't it?" "Oh! Is that an elephant?" "And that's a kite. Is that a kite, Josh?") At most, the child would need to recognize and acknowledge the appropriateness of his mother's label. In practice, however, the mothers do not appear to expect any response to these tag questions. Similarly, mothers often ask the child for the label of an object ("What's this?") or other information, but then immediately, or with only a brief pause, go ahead and provide the label themselves. In the following examples, the mother's answer followed close on the heels of her own question.

M(12): That's a doggie.
" What does a doggie say?
" Arf, arf, arf, arf.

M(15): Do you know what that is?
" Elephant.

In other words, mothers of younger children frequently adopt a questioning format, but assume both roles themselves and do not really require or even

expect the child to take an active part. Thus, in spite of the apparent memory demand, no burden is actually placed on the child for recall.

Starting around 15 months, the children we observed were expected to take an increasingly active role in the reading dialogue. The mother started making clear memory demands, both for recall and recognition memory; and these demands increased both in frequency and complexity as a function of the child's age.

In the earliest recall demands, the mother points to an object, requesting that the child label it ("What's this?").

M(15): What's this?
C: Bah.
M: Ball.

M(18): You know what this is?
C: Kite.
M: A kite. Yeah.

Thus, the child is asked to retrieve from his memory the name that applies to a single, visible, clearly demarcated object.

The mother's decision as to whether to label an object herself or ask her child to label it seems to be based on her beliefs regarding her child's knowledge. For all ages, a mother was much more likely to request a label for words that she reported her child spontaneously produced than for words she thought her child never said. In other words, if a mother thinks her child knows a word, she is very likely to ask him to label the corresponding object; if she thinks he does not already know it, she supplies the label herself. Thus, the mothers act in a way that maximizes their child's correct contributions to the interaction.

Obviously, to a great extent, the mother's demands are a function of the child's linguistic development. Twelve-month-olds do not talk much, and even 15- or 18-month-olds have restricted vocabularies. However, what I wish to emphasize here is that whatever the level of the child's competency, the mother adjusts her questioning to it. And she does so in many ways that are not reducible to the extent of the child's vocabulary.

Following the earliest demands for recall of the names of single pictured objects, the mothers step up their demands by asking for recall of indirectly specified information. For example, mothers of older children ask for an inference based on the picture or for general information that is related to the pictured objects but that may not actually be in the picture.

M(27): That's a horse.
" And look what he's going to eat.
C: Apple.
M: Apple.

M(29): What do bees make?
C: Honey.
M: Good.

M(30): Where does the baby bee live?
C: (unintelligible)
M: Lives in a bee hive.

Thus, in terms of recall memory, mothers of the youngest children use a question format, but provide the answers themselves. Next, they ask the child to recall the name of a salient, clearly specified object, and they primarily ask for ones they believe the child knows. Later, they ask their child to recall other general information related to the pictured objects, but not actually depicted.

With recognition memory, the case is slightly more complex. Sometimes, instead of pointing to an object and telling the child its name, the mother names an object, asking the child to point to it. ("Where's the kitty?" "Show me the duck.") In this case, the memory requirement for the child is simply to recognize the picture that matches his mother's label. In the study with the younger children (12- to 18-month-olds), which used a very simple ABC book with only four spatially separated pictures of single objects visible at a time, even 15-month-old children were asked to point. ("Show momma the doggie.")

In the other reading study, where a complex farm scene was the stimulus material, requests for points occurred quite infrequently for any but the oldest subjects (3-year-olds). ("Do you see a sheep anywhere?") While a request for

a point response only requires recognition memory on the part of the child, picking out the appropriate object from a complex scene may be farily difficult. Thus, the data suggest that mothers' demands for recognition memory may depend on the difficulty of isolating the named object.

There is some evidence of mothers of older children stepping up the complexity of their demands for recognition memory (just as occurred for recall memory). The mother of the oldest child we observed repeatedly asked her child to point to objects, but the objects were only indirectly specified. Rather than saying, "Show me the barn," this mother said, "Show me where the horses sleep at night." (Also, "Can you find an animal that says 'oink, oink'?") Thus, the child had to use his general knowledge to figure out which object was being specified and then had to locate and point to it.

One technique of a clearly mnemonic nature that the mothers used was to relate the pictured material to their child's personal experience, explicitly drawing a connection between the child's own memory and the pictures in the book. Examination of these personal references revealed two main points. First, this technique seems to be employed more often by mothers of younger children.

M(12): Frog.
" You have a frog, a stuffed one.

M(15): Look at the house.
" We live in a big house, don't we?

M(15): ...Indian.
" Is that Chief Illiniwek?
" Huh? Is that like Chief Illiniwek? (The University of Illinois mascot)

M(18): Look at the little mouse.
" Just like what Daddy works with.

Ninety-two percent of the mothers of children who were 18 months or younger at least once related something in a picture to the child's past experience (as opposed to 54 percent of the older children's mothers). Most were quite brief ("Teddy bear. You have a teddy bear at home, don't you?"), although a few were

extensive. Second, the great majority of these personal references were to general aspects of the child's experience, as opposed to specific events. Mothers tended to comment that a pictured object was similar to something the child owned, something the child did or didn't like, or some activity the child habitually engaged in. Only a small proportion (15%) of these references had to do with a specific event that the child had experienced and might be expected to remember. The following references to events are fairly atypical.

M(18): Mmm. You had some jelly this morning.

M(22): What happens with the bee?
" Does the bee sometimes sting you like it stung Daddy?
C: Yeah.

M(29): Do you remember, Robbie, when the farmer was plowing the field behind our house?
" Do you remember that farmer on the big tractor?
C: Uh-huh. Cutting down.
M: What did he cut down on his field?
" What did the farmer grow?
" Do you remember?
C: No.
M: He grew corn, remember?
" Big corn stalks.
C: Uh-huh.
M: Remember that?

Thus, mothers of very young children, presumably to make the pictured information clearer and more salient, relate it to the child's personal experience. However, they show a strong bias toward bringing up general or enduring aspects of the child's life, rather than specific events he has experienced.

To look further at young children's autobiographical memory, and especially their mother's prompting of their memory for experience, we have recently been collecting data on mother-child pairs looking at family photograph albums together. Here, a large proportion of the pictures have to do with the child's own personal experience, and we expected that the mothers would do quite a lot of prompting their children to recall and reminisce about specific events. We have been going into the homes to tape record mothers looking at family photograph

albums with their 24- to 30-month-old children. We specified that the pictures should be ones taken within the last six months and should involve events the child had been involved in or people the child knows or has met. Most of the mothers reported engaging in this activity two or more times per month.

The results we have to date (on 16 pairs) are not what we had expected. The most striking result, and the first thing that surprised us, was the infrequency of specific memory questioning by the mothers. Although the mothers ask a great many questions about the pictures, the preponderance of their questions are couched in the present tense: for over three-fourths of the pictures, they ask the children to describe, but not to recall, what is depicted in the photographs. They ask the child to name the people present ("Who's that?"), to tell where they are located ("Whose house is that?"), or to describe what is happening.

M(24): (Looking at a photo of the child on his mother's lap, drinking from a bottle)
M What's this picture show?
C: Tristan.
M: Doing what?
C: Tristan.
M: Snuggling with mommy? Hmm?
C: Whats 'at?
M: But what is Tristan holding?
C: Holding a baba [bottle].
M: Yeah.

The questions thus require recall by the child, but in only a minority of the cases is it recall for a particular pictured event. The mothers rarely say, "Do you remember...?". One of the most revealing examples in this regard is the following:

M(24): (Looking at photo of child, who has just taken a drink of tonic water meant for her father)
M: ...You're drinking that nasty stuff in the bottle, huh.
C: Baby.
M: Did you like it?
" Do you like that drink of Daddy's?
" Doesn't look like it.
" No. But that was funny.

Here, the mother begins asking her child about a unique event in the past tense, but then changes to the present tense, thus switching from asking her child to remember the event to asking her to infer her reaction to the event from her facial expression shown in the picture.

These data suggest that mothers of two and 2½-year-old children do not seem to expect them to be able to report specific events, but only general knowledge. This is true even in the context of looking at photographs, which should be maximally effective cues for retrieval of stored experiences.

When we look further at the instances of recall demands that did occur, we find another interesting result. When the mother of a young child does ask the child to recall an experience, that event is almost always a unique or unusual one.

M(30): (Looking at a vacation photo of mother and child in front of the Statue of Liberty)
M: What's this?...
" The Statue of Liberty.
" Did you, did we go and see her?
C: Mm hmm.
M: Remember we went on the boat?
C: Yeah.
M: We were on the boat right now in that picture-- we were riding on the boat.
C: Oh.
M: Who took our picture?
C: What? Daddy.
M: Right.
" Did you like the boat ride?
C: Yes.
M: We walked all around the Statue.
C: Mm hmm.
M: And we climbed up the steps.
C: Yeah.

So far in our research, most examples where a mother has asked her child to recall something about an event have involved non-recurring, distinctive events. The memory questions generally have to do with holidays, vacations, or visits. There is usually information in the picture to clearly separate that event from the child's everyday experience (e.g., different clothes or costumes, decorations, setting, etc.). I should emphasize that even pictures of highly

unusual events were most often discussed, or described, in the present tense. However, whenever the mother discussed a photo in the past tense and asked the child to remember something about it, that particular event was usually distinctive or unique.

In both of the reading studies, which used common books produced for young children, and in the family photo study, mothers of young children show a strong bias to ask their children to report general knowledge rather than to recount specific events from personal past experience. These data parallel those of Katherine Nelson and her colleagues. They find that young children provide coherent recall of scripted or general information earlier than they produce integrated accounts of specific past experiences. The mothers we have observed tend to ask their children for just the type of recall Nelson has shown they are capable of giving.

This relationship could occur because the mothers adjust their memory demands to what they believe the child can produce (i.e., the child's ability provokes the maternal behavior). It could also be that the fact that mothers ask for general information causes their children to develop proficiency at reporting general knowledge earlier than recounting specific experience.

We cannot definitely decide between these alternatives, but since our other data suggest that the mothers in various ways regulate their questions based on their child's capabilities, I would assume that the former is probably the case. That is, I think that for the most part the mother is tracking the child's advances and affording him the opportunity to display his developmental achievements.

Given this, what role might these maternal demands play in the child's development? For one thing, the child receives practice in the retrieval of information on demand, and this practice takes place with maximal environmental and social support. In terms of environmental support, the presence of the picture or photograph virtually eliminates any possible ambiguity regarding the

referent of the mother's comments or questions. In terms of social support, the child's mnemonic activities take place in the context of a warm and pleasurable interaction. And, as I have described, the mother structures the situation to elicit the best the child has to offer. So far, I've stressed this side, the fact that the majority of the mother's demands are at a level she believes her child can comply with. However, I would also like to stress that by no means all of the mother's demands are aimed at her child's current level. At every age, the mothers also ask for some information that the child is probably incapable of supplying. When she does so, and her child fails to respond, the mother almost always supplies the response that she had requested of her child. Thus, the child is provided with a model of a response that he is currently incapable of producing himself.

To speculate further, it may be that this process is especially efficacious in that just as the child is in the process of struggling to organize a coherent response to his mother's question, she provides the response herself. Hence, the child has the opportunity to recognize the degree of congruence between his own inchoate thought and his mother's full response.

Thus, in these extremely common interactions of reading books or looking at photo albums together, mothers both give their children the opportunity to demonstrate whatever prowess they already possess and they also provide them with models of future acquisitions.